

### ***Abstract***

A device for taking ultra-high frequency hydrometric measurements by generating sine wave trains of incident wave(s) at frequencies assuming several values in arithmetic progression between a few MHz and a few GHz, and has at least one ultra-high frequency cable. The cable includes at least two measuring stations (4) spaced along the cable a predetermined distance apart, each measuring station (4) having measuring cell (14) and a separator device capable of only sampling a portion of the incident wave(s) with sufficient energy for each measuring cell to send back an echo measurable by electronic read-out device so that the sampling of the incident wave(s) by each measuring station occurs essentially simultaneously. Each measuring cell (14) consists of an ultra-high frequency line portion with its distal end terminated by a short circuit and with the line portion having a circumferential external wall which is either porous or provided with ports.